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Fast Multi-Face Detection Using Facial Component Based Validation by Fuzzy Logic

Pham Bao

Abstract - A human skin color range is used to find the candidates by segmentation and the rules of fuzzy factor are established by using facial characteristics to determine whether the candidate is face or not. WE have separated two connected faces. In this paper, after segmentation with skin color, facial components are used instead of facial factors to build fuzzy factors for verifying face candidates. Concurrently with detection, We separate connected candidates by fast marching but a fuzzy factor is built to choose radius which depends on the size of a candidate and the limit of speed. We use probability of rules and calculate probability of face. Experimental results demonstrate successful face detection over a wide range of facial variations in color, position, scale, orientation 3D pose, and expression in images from several photo collections (both indoors and outdoors). The computation time in this study is the same as that of the previous research, but the failure rate in the proposed algorithm is lower than that of the previous method .